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ABSTRACT

The definition of work has undergone a massive transition within the last decade, and this trend has major implications for vocational education. Earlier ideas of work included that it was full-time, permanent, and for life; in addition, work provided opportunities for career development, a clearly-defined employer-worker relationship, and clear work and family separation. Since these assumptions no longer exist, and have not really existed in developed nations for some time, vocational education must be examined in light of changes in this concept of work. For example, in an attempt to meet employer needs, vocational education has been shifting location from the education system to the workplace, with resulting confusion on the part of vocational educators. Throughout the western world, nations have shifted the emphasis from meeting the individual needs of vocational education students to a system that is industry-driven, although there is now some reaction against that change. In addition, the nature of workplaces is changing. Organizations are becoming increasingly specialized and multi-disciplinary, and large corporations are breaking into smaller units. As a result, there are vocational education needs to be met in the areas of content, especially in increasing demand for the development of conceptual and intellectual skills. The processes of vocational education also are changing, with debate about pre-employment versus on-the-job training, classroom-based versus experienced-based vocational education, and course-centered versus individualized delivery systems. Immediate challenges for vocational education include the following: (1) making employer involvement an economic imperative; (2) improving awareness of workplace

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realities among vocational education teachers; (3) adopting cooperative programs to deal with multiple employers, and (4) building international alliances in vocational education. (Contains 24 references.) (KC)

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The National Dissemination Center

Presents

"Implications for VocEd of Changing Work Arrangements"

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Sydney, Australia

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Implications for VocEd of changing work arrangements

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Our ideas about what constitutes 'work' are changing very rapidly as the ways in which work is organised, the tools that are used in work and the relationship between ones working life and the social, cultural and family components of life shift. All of this appears to have significant implications for vocational education's content, processes and, indeed, its central purposes.

Traditionally, vocational education has been seen as a system that is primarily embedded in the institutional context of formal education. Seen in this light, it has ignored the considerable—and significant— work-related learning that occurs throughout one's working life. Much of this learning occurs informally but, frequently, it has involved deliberate instructional processes organised within the workplace or through some external provider of training.

More recently, nations have sought to provide greater recognition and formal status to this work -based learning and, in some cases, to integrate it with the formally-recognised learning of the classroom. Among many reasons for this development has been a growing disenchantment with the ability of the vocational education system to met the rapidly changing needs of the workplace.

In this presentation, we seek to examine some of the central issues that are being faced by vocational education systems as they seek to adapt to the nature of 'work' in the new century. In doing so, the presentation will also discuss the impact of the various changes and possible responses to these changes for society more generally.

The presentation draws largely on current and recent Australian research but also considers other, related, work from Europe and North America. It seeks to identify the major changes in working arrangements and the nature of work and, through these, to explore the central issues that these raise for vocational education.

It raises questions about how we might identify the central purpose of vocational education, especially in terms of whose interests it should serve. It then looks at the content of vocational education and, in a somewhat new light, considers the question of general versus vocational education.

As well, it will consider issues of how vocational education might be organised and delivered (including consideration of new technologies) and, finally, proposes that there are some issues that require immediate attention.

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Geof's professional experience has involved a range of areas within vocational education for over 25 years. These have ranged across work as diverse as TAFE vocational counsellor, researcher, manager and policy adviser. For nearly twenty years, he worked with the NSW TAFE Commission where he headed, the Assessment Research and Development Unit, a central policy unit with responsibility for establishing assessment policy and practice in NSW TAFE colleges. Subsequently he ran the Industry Restructuring Taskforce which managed the introduction of competency-based training in NSW and acted as the key liaison point with industry. Later he was the founding Chief Executive of the National Community Services and Health Industry Training Advisory Board. This body was one of a number of industry-owned and operated bodies that provided a coordinated industry input into the vocational education systems in Australia.

Since 1995, Geof has worked within the RCVET, a nationally-recognised Key Research Centre supported by the Australian National Training Authority. In that role he has managed over twenty large and small-scale projects, has been Acting Director on a number of occasions and has spoken widely on research and policy matters.

Community and professional involvements have included

- VEETAC Working Party for the implementation of CBT
- Secretariat of the Mayer Committee
- National Metals & Engineering Training Board
- Management Committee of the National Centre for Competency-based Training
- Board of Directors of the National Centre for Vocational Education Research
- Member, NSW Coal Mining Qualifications Board

Teaching areas

Vocational education and training, research concepts and methods, course and program design, program evaluation, learner assessment.

Research and scholarly interests include

The effective linkage between policy and practice, improving assessment practice, the nature of learning in the workplace and its role within a formal VET system and the nature and role of institutions (including TAFE) within VET. Geof's current work is focusing on how these are being changed by emerging technologies, changing employment practices, work structures and the like.

Recent publications

Boud, D, Freeland, J, Hawke, G & McDonald, R. 1998, 'More strategic; more critical; more evaluative: Perspectives on research into workplace learning and assessment', in ed Boud, D., *Current issues and new agendas in workplace learning*, National Centre for Vocational Education Research, Adelaide: 136-150.

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Implications for VocEd of changing work arrangements

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Our ideas about what constitutes 'work' are changing very rapidly, as shifts are occurring in the ways in which work is organised, the tools that are used in work and the relationship between one's working life and the social, cultural and family components of life. All of this appears to have significant implications for vocational education's content, processes and, indeed, its central purposes.

Traditionally, vocational education has been seen as a system that is primarily embedded in the institutional context of formal education. Seen in this light, it has ignored the considerable—and significant—work-related learning that occurs throughout one's working life. Much of this learning occurs informally but, frequently, it has involved deliberate instructional processes organised within the workplace or through some external provider of training.

More recently, nations have sought to provide greater recognition and formal status to this work-based learning and, in some cases, to integrate it with the formally-recognised learning of the classroom. Among many reasons for this development has been a growing disenchantment with the ability of the vocational education system to met the rapidly changing needs of the workplace.

This disenchantment can be linked to a growing sense of urgency—even despair in some sectors of the economy—about education's ability to keep up with the rapid panoply of changes that are taking place in the working world.

Basic notions of 'work'

Not very long ago, 'work' seemed a relatively stable concept. It played a major role in the lives of most adult men and indirectly shaped women's lives through its impacts on the male breadwinner who was also the 'head of the family'.

How things have changed!

The institution of work was defined by a set of established features that applied almost universally. Work was:

- **Full-time**: most jobs involved 35-40 hours per week of employment and typically operated 9-5 on weekdays. Of course, there were exceptions, but these were seen as exceptional and didn't have any real impact on the normative understanding of the concept.
- **'Permanent'**: employees expected to have their job until such time as they chose to move on. Like the sun rising it was a largely unquestioned part of the contract.
- **For life**: work was a continuous part of the lives of most workers from the time of their first job until their retirement. When they chose to move on to a new employer or a new work role, the opportunity was available.

As well, work was characterised by a number of other features:

- **Career development** was normally available—at least in theory—to anyone who had the ability or desire to pursue it. People talked about jobs in 'career' terms and some level of progress was expected of most workers.
- **A clearly-defined employer-worker relationship**. The contract between the employer and the worker was generally clear. I some cases it was based on a balance of power that had evolved from conflict or negotiation, in others it involved almost a family-like relationship of mutual obligations. There were often, too, legislative frameworks that constrained and defined the relationship.

- **Clear work/family separation**. Work was a distinct part of the worker's life and it intruded little if at all into the balance of his/her existence. The notion that 'work is left at the office' was a defining characteristic of work for most.

Now it is important to say that this description was not entirely true for all workers or for all of the recent past. However, it provides a fairly good description of the normative concept of work that has defined our understanding of the institution for the last few generations.

It is not at all unfair to say that for the developed economies, none of these features are any longer the case.

The very essence of what we have known as work has undergone a massive transition within the last decade and, for vocational education, this is having major implications.

Recognition of this is driving change in most western nations and many in Asia as well. In all these countries, governments have launched major programs of reform that are intended to improve the effectiveness of their vocational education systems in the face of these massive changes. However, few of these changes have been "data-driven". Rather, they have been knee-jerk reactions usually driven by economic fears that failure to maintain or improve the skills base of their workforce will see them decline in international competitiveness—the 1990s' most successful bogeyman.

While not a comprehensive survey of all relevant research, in this paper we seek to draw on a range of research that has now begun around the world and that seeks to throw light on these issues. In the main, we will focus on current and recent Australian research, but also consider other related work from Europe and North America. The paper seeks to identify the major changes in working arrangements and the nature of work and, through these, to explore the central issues that they raise for vocational education.

Implications for vocational education

The new ways in which work is configured raise questions about the central purpose of vocational education, especially in terms of whose interests it should serve. It appears to be the case that the central assumptions that have underpinned our rationale as vocational educators may no longer apply—or, at least, apply in somewhat different ways.

Moreover, they force us to rethink the content of vocational education especially in ways that, in a somewhat new light, raise once more the question of general versus vocational education.

As well, the next sections will consider issues about how vocational education is organised and delivered (including consideration of new technologies) and, finally, proposes that there are some issues that require immediate attention.

The purpose of vocational education?

This it seems to me, is a central issue. For generations vocational education has, in most western nations, been understood as a part of the formal, state-directed education system. While it has not usually had the same status or regard as the other major sectors—schooling and higher education—it has nonetheless been constructed in similar ways and been shaped by similar philosophies and cultures.

More recently, and as part of the initial responses of nations to the changing contexts of work, vocational education has been reconceptualised as a process more closely linked to human resource development than to education. In particular, the central importance of the workplace as the 'best' location for vocationally-relevant learning has been emphasised—some might say reified. It is argued that this shift has contributed greatly to a general loss of direction for vocational educators as they seek to identify a new purpose and sense of self-identity in a confusing—and confused—set of policy agendas.

The loss of a clear direction or mission for vocational education is reflected in three substantial debates that are occurring internationally. In each country, the flavour and shape of these debates varies according to the

local culture and history but the essence, it seems, remains the same. The three debates are around the questions 'who is the "client"?', 'what is the scope?' and 'what is the goal?' of vocational education.

Looking at each of these highlights the deep uncertainty.

Who is the 'client'?

Throughout the west, nations have shifted the emphasis away from meeting the individual needs of vocational education students and towards a system that is industry-driven. However, this shift has led to deep tensions and divisions within the vocational education community and there is now something of a reaction against the extreme nature of that change. Wherever the debate might be in different countries, the fundamental question of the 'proper balance' between the individual, the community and Industry remains unresolved. Indeed, in most countries there are now also questions about what is meant by Industry: is it individual employers, occupations, or industry sectors (such as Tourism, for example)? Our experience is that focusing on any one of these leads to very different outcomes.

One common way in which this debate has manifested itself has been in the question of "who pays?" As the cost of vocational education has risen and governments have increasingly adopted small government/low tax formulations, the pressure has grown to identify the primary beneficiaries of vocational education, so that they might bear at least some of these costs.

However, most of the analyses that have looked at 'rate of return' to investments in vocational education have had to draw on historical data sets, and the ways in which work is changing make those analyses quite suspect.

For example, research is showing that workers are, increasingly, either self-employed (see Figure 1) or work for multiple employers (Australian Business Limited 1997). This clearly minimises the direct interest that any specific employer may have in the education or training of these workers. Moreover, it makes it increasingly unlikely that any employer will take responsibility for providing training.

ABS *The Labour Force Australia*, Cat. No. 6204

Figure 1 Growth in self-employed workers in Australia

If this trend continues—and it has been a consistent pattern in Australia now for many years—the individual will increasingly be the one directly gaining from increased knowledge and skill. Employers will be in a market position to employ only those already skilled to do the job (an indirect gain?). While it is still unclear how to allocate proportional benefit, it is clear that employers are going to have increasingly less opportunity—except through their power to employ—to determine what training workers have or when.

The evidence that workers are now more likely to have multiple 'career' changes further reinforces this conclusion. Indeed, the notion of a career as we have known it is increasingly inapplicable to the working lives of many people. Rather workers are coming to move frequently between income-earning opportunities, often in areas that form no obvious sequence of progression or advancement.

Again, this has implications for the extent to which employers or Industry can be seen to benefit from the education or training workers receive. In the past, programs of training were designed in ways that laid down the foundations of a discipline that would mature and develop over years. However, two to five years is now a typical employment span, after which a worker is quite likely to move to work which has a quite different discipline base. For the individual worker, there is some sense of linkage between past and future work, but this is more likely to be idiosyncratic than part of a defined career structure. The benefits to the individual, therefore, result from unique combinations of personality, circumstance, happenstance and education, making the clear contribution of the educational process more difficult to recognise or define.

In addition, the nature of workplaces themselves is changing. In particular, enterprises are becoming increasingly specialised and, quite often, multi-disciplinary. For most enterprises in the past, one or two programs of vocational education would have provided the bulk of the training appropriate to that enterprise's core staff. But, more recently, enterprises have adapted a much more broadly-based approach to the sets of underlying knowledge or skills they require. For example, Allen (2000) shows that for Canadian graduates, graduates in the humanities or social sciences are at least as likely to gain jobs in the business sector as are graduates in business. The new 'dot.com' corporations are classic examples of this new approach. Moreover, the large enterprises that have provided us the models of traditional hierarchical organisations are breaking themselves up into semi-autonomous operations that are working more like small businesses than the large organisations they once were. We know that small businesses are not active in using formal training provision (Coopers & Lybrand 1994; Field 1997). The main reason for this appears to be that small businesses are unique in the particular collection of knowledge and skills they draw on, and this means that few (if any) standard training programs are suitable to their needs.

The implication of this is that, to the extent that vocational education is specific in its orientation, neither individual workers nor enterprises are likely to be very well-served by the system.

Added to this is the fact that many new enterprises are more like collectives of individuals than they are like traditional organisations. This adds to the diversity of needs that we have seen already.

What is the scope?

These and other changes we'll now consider also have consequences for the broad scope of what vocational education seeks to achieve. Should it seek to focus on a particular job, a career, work in general or life in general?

We've already observed that 'careers' are becoming less common and that multiple jobs during one's lifetime are becoming the norm. (Wolf 1996) has reported that, in Europe, a typical young person can be expected to have had up to five different jobs before the age of thirty. So what is a vocational education system to prepare people for? How should it determine a balance between education for the beginning of a working life and continuing education throughout working life?

Much of current vocational education policy has sought to encourage employers to take a greater responsibility for the costs of vocational education. In Australia, for example, the Federal Government followed a French model and introduced the Training Guarantee Levy (for its rationale, see Dawkins 1988) at the end of the 1980s to require employers to contribute to the training of their workforce. That approach was not successful in the long run and employer contributions to training are now in decline (Burke 1998). One important reason for this is that employers are 'buying' already skilled employees wherever they can rather than providing in-house training (Hawke in press). This is shifting the focus of the learning that matters to individuals from one that emphasised the immediate needs of a particular job context to one that emphasises future employability in a diversifying and contracting job market. What responsibility does vocational education have in that context?

Another relevant feature is th ork' and other life roles are increasingly becoming mixed. The clear demarcation that once characterised the end of the working day is no longer part of the experience of many workers. Examples of how this is occurring include the following:

- Self-employed workers often work from home
- Service workers often work split and changing shift patterns
- Working hours are increasing (see Figure 2)
- The extensive adoption of cell phones is making workers accessible 24 hours a day, 7 days a week

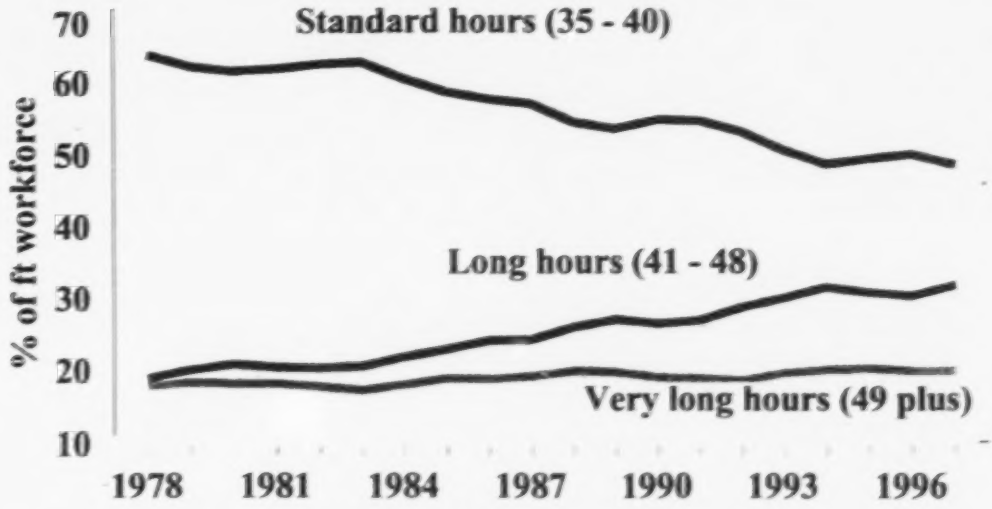

Figure 2 Growth in working hours in Australia (ABS Cat No. 2604)

These changes are having an impact on the capacity of individual workers to access education and training while it continues to be predominantly offered in fixed time slots and/or in fixed locations. We'll consider this again later, but it also raises questions about what is 'work'? We are used to the situation where work and life are clearly delineated and vocational education was about the former but not, in the main, concerned with the latter. For the homeworker, however, success in 'work' is as much about organising and maintaining the home environment—physical and social—as it is about productive output. Managing the domestic budget and the 'work' budget are closely intertwined, for example.

This raises substantial questions about any separation between vocational education and other forms of education, but it also raises questions about the scope of coverage that 'education for work' should entail.

What is the goal?

All of these, too, have implications for the fundamental goals of vocational education. In the 1960s and '70s, it was generally accepted that vocational education was about individual development and also about the development of the society as a whole through enriching the working lives of its members. In the 1990s, however, the goal of vocational education became re-oriented towards improving the economic position of the nation and, through that, to enhance the lives of all.

In particular, discourses about both economic and national goals came to dominate vocational education policy (eg. Australian National Training Authority 1996). Of course, these are not discussions that involve black-and-white choices, but the balance between these interests has important implications for the organisation and direction of vocational education. So, is vocational education primarily designed to benefit the economy, the society or humanity?

Let us consider some of what we are learning about the emerging world of work and consider how these affect our question. Firstly, evidence is now accumulating in North America and Australia that economically-driven changes to work such as downsizing are failing. While the substantial job losses that

characterised the 1990s remain largely in place, some large organisations are beginning to grow in size again, although this is not likely to be to their original levels.

The essential finding from the research now underway appears to be that the damage done to morale and other socio-cultural aspects of the organisation's operation by the drastic re-engineering exceeded the gains (if any) from the reduction in wages. This appears to reinforce views that economic concerns alone are blind to the more complex interdependencies that ultimately contribute to the effective operation of any social institution.

A different perspective arises when it is recognised that 'workers' are moving around the world more often than at any earlier time and that enterprises are increasingly adopting internationally-uniform practices (Hawke in press; Maglen 1995). Today a number of corporations are listed amongst the world's largest economic entities—their gross worth exceeding that of major countries, as Figure 3 shows. This aspect of 'globalisation' is especially significant as the recent focus on national self-interest as a dominating factor in policy has been so pervasive. In the hospitality industry, for example, major international hotel chains prefer to utilise their own training systems and qualifications rather than those of the countries in which they operate. However, this is not recognised in national policy where, regardless, national competency standards for these areas have been developed—often at considerable public expense (eg. Tourism Training Australia 1991).

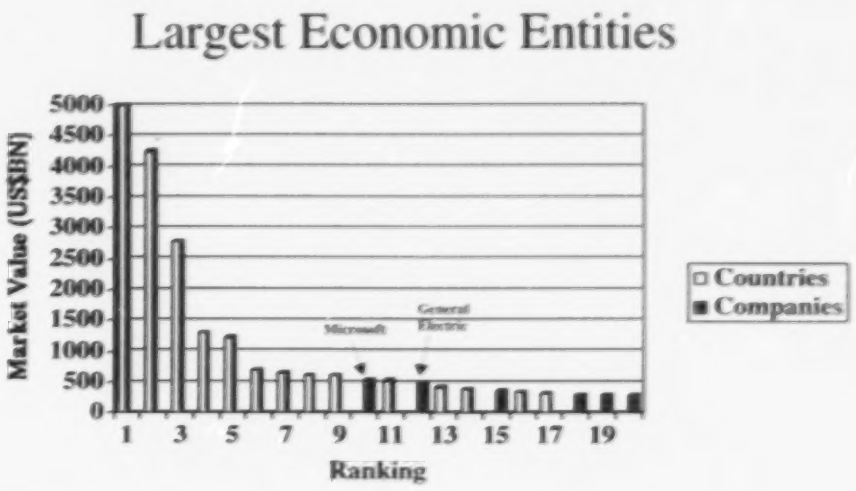

Figure 3 Top 20 economic entities

The general picture that emerges is that 'work' is progressively becoming less readily distinguished from the wider life of our society, our nation and the world at large. How can nationally-based systems deal with this diversity and how can the balance between these foci be managed as circumstances continue to shift and change?

In summary, then, the purposes for which vocational education systems have existed need to be questioned in the light of the changes in the world of work. In many systems, there is a feeling that vocational education has lost its way and it is important that these issues be debated fully and in a considered—rather than an ideologically-driven—way.

The content of vocational education

In the process of discussing the relative emphases that vocational education might now need to consider, we've also identified in passing some questions about both content and process. In this section we will explore the issue of content more fully.

The central issue that appears to arise from the ways in which work is changing is that of the relative emphasis in curricula of generic vs specific content. This, of course, is not a new debate and is one that involves many subsidiary issues, especially those relating to the transfer of knowledge from one context to another. However, in the present context, the issue is again one of balance—to what extent should vocational curriculum emphasise specific vocational skills as opposed to an emphasis on broad, underlying principles?

As has been noted above, the trend in recent times has been towards increasingly specific vocational content, and employer organisations in Australia and elsewhere have been vociferous in criticising the 'irrelevance' of courses to their particular contexts. While the emphasis has been more or less explicit, a central driver of the international push towards standards-based vocational education has been employer demands for more targeted vocational training (Confederation of Australian Industry 1991).

However, in recent times there have been notable shifts in employer views, with many peak employer bodies now increasingly arguing for a very different form of vocational education (Business Council of Australia 1994). Industry organisations are coming to see a need for a more flexible, adaptable workforce than before. They are arguing for an educational process that provides for the capacity of workers to adjust to the rapidly changing specific demands of new work contexts without extensive retraining. This is being translated in European contexts and, increasingly in Australia and North America, too, into support for the concept of 'life-long learning'.

It seems clear from the data that continuous change in working contexts is becoming increasingly common—whether through changes in employment or through the variability of contractual work. Thus, workers cannot expect to be able to acquire in their early years a knowledge and skill base that will serve their needs for the rest of their working lives. This does not, however, answer our question, but does suggest that a more active process of continuous learning may be required.

The more significant evidence comes from an examination of the content and nature of work itself and, in particular the Information & Computer Technologies (ICTs) that are becoming endemic in every aspect of our lives. One of the core features of these technologies is that, at an ever-increasing rate, routine, procedural knowledge and skill is being embedded in the software and hardware itself. Consider, for example, the spell-checker within word processing programs. While this provides many opportunities for amusement, it has largely removed the routine skills of spelling and copy editing. It has not, however, removed the need to be able to spell. Rather it now requires the more complex intellectual capacity for recognising the appropriate spelling required in a particular grammatical context. This is a simple example of the way in which embedded expertise within technologies is changing the level and kind of conceptual ability that their operation requires.

Another factor is the nature of work systems and structures. We noted earlier the study that found Canadian graduates in the humanities or social sciences are at least as likely to gain jobs in the business sector, as are graduates in business. (Allen 2000) attributes this to three factors:

- The increased volume of data now available to most enterprises requires organising, analysing and then acting upon.
- Flatter organisational structures require a wide range of workers to demonstrate an increased level of critical and independent judgement.
- New organisational systems (eg, the team-based approach now widely adopted) require better interpersonal & communication skills.

All of this is means that conceptual and intellectual skills are in increasing demand and, in particular, that theoretical and conceptual knowledge is of increasing value across the spectrum of work. (Maglen & Shah 1999) have developed a new occupational structure that they believe better represents the changing nature of work. Their analysis of Australian census data shows how jobs drawing on conceptual skills and jobs that involve personal service have grown in the Australian economy

		Work-force	Growth 86 - 95
Symbolic	Conceptual	15%	2.4
	Technical	2%	0.1
In-person Service	Professional	9%	2.1
	Intermediate	9%	2.3
	Elementary	17%	3.7
Routine Production	Advanced	14%	-0.1
	Intermed. – White	12%	-0.2
	Intermed. – Blue	8%	0.4
	Low-skill	14%	0.7

Table 1 Changes in the Australian workforce.

However, this poses some significant problems for vocational education. Firstly we know that teaching generic knowledge or skills is not itself sufficient to ensure transfer occurs (Misko 1999; Wolf & Silver 1995). Rather, transfer skills must be explicitly developed. Moreover, we know that not all learners acquire transfer skills readily. We are only just starting to appreciate the ways in which transfer is facilitated, but we are far from knowing how to do this reliably. Moreover, it is clear that the ability to work with conceptual problems is not available to all learners. While they highlight many different facets of cognitive and intellectual development, all the developmental theorists agree that the acquisition of the ability to manipulate abstract concepts develops late, if at all, in most learners.

The advantage that broad conceptual and analytic skill delivers to some sectors of the workforce has been evident for a very long time, but is becoming more pronounced with the changes in the content and processes of work we are now seeing. Many social commentators are now highlighting the way in which changing work demands are contributing toward the development of a bifurcated society—one in which an educated, intellectual elite engage in work that is challenging and well-rewarded, and a larger mass of workers whose levels of responsibility and control over their own work is minimal.

If that scenario comes into play, then what is vocational education's role? Already, increasing proportions of the population in most western nations are attending higher education to receive the broad-based education that seems most appropriate for their role as part of that elite. Will vocational education—again—become a residual component of education providing short, routinised 'training' for the rest of the workforce?

This issue of access and equity is also relevant in the context of the ICTs. We know, for instance, that access to the ICTs is very unevenly spread in both institutions and workplaces. Schools, colleges and universities vary greatly in their use of and access to technology, and workplaces, too, do not always use ICTs to the extent that we might imagine. There is no doubt that use of these technologies and access to them has grown rapidly in the last decade and continues to grow. However, for many learners—in the classroom or in the workplace—their ability to develop skills and knowledge about—and skills in using—these technologies are limited. In the context of dwindling government funding it is not clear how that inequity can be addressed.

A final issue is that the new technologies are rapidly being used as an instructional medium. However, there are early indications that traditional pedagogies may not always be effective when combined with these technologies. For example, institutions around the world are rushing headlong to translate their existing programs into web-delivered curriculum with little or no examination of its effectiveness or appropriateness. This is despite our awareness that traditional distance education is not without its problems and that the 1960s rush to computer-based learning came to nothing.

The process of vocational education?

It is clear that the content and processes of education are inherently intertwined and though we've attempted to disentangle them here, already we've begun to raise questions about process. However, there are important questions about the organisation and delivery of vocational education that also need some exploration, and we now turn to those.

Pre-employment vs In-employment

Whether within the schooling system or in dedicated post-secondary colleges, the heart of vocational education provision has centred around pre-employment programs. The most substantial exception to this has been the persistence in European and British-originated systems of the notion of apprenticeship, where an integration of work-based and institution-based instruction occurred as part of a regulated form of employment.

This model has largely drawn on the assumption that basic skills and broad-based principles could be developed outside the workplace and that this would be supplemented by specific, focused training in the workplace. To a high degree this assumed that one could divorce theory and practice, with the latter the responsibility of the employer.

However, this model drew increasing criticism through the 1980s as theoretical developments such as the 'situated learning' model of (Lave & Wenger 1991) supported the growing dissatisfaction of employers. For this reason, most western vocational education systems have refocussed their efforts over the last decade to provide for a much greater role for learning occurring in the workplace itself. In Australia, for example, learning occurring wholly in the workplace can be accredited to the same standing as traditional programs offered by universities and TAFE colleges.

However, as the sorts of changes in working environments we've discussed spread, employers are reducing their in-house training except where government incentives apply or some form of social conscience operates (Australian Bureau of Statistics (ABS) 1999; Figgis 1998). As noted earlier, employers are seeing a less direct relationship between the sorts of skills they require and the unique requirements of their own organisation. As a consequence, there is less incentive for them to invest in training and, at the same time, they believe that the sorts of skills that matter form part of general education and are thus the responsibility of the community more broadly.

This, the reduction in the size of the workforce overall—making it a buyer's market—and the increased level of education of the workforce in general have increased employers' expectations of the 'readiness' of their employees. That is, an employer now expects a new employee to be productive very quickly and to require only the most basic orientation to the specific workplace.

This is a very different role for education within the whole cultural framework of society.

One sign of the way in which new patterns of vocational education might develop is that there is evidence that Co-op programs can be successful in providing a bridge into work. Grosjean (2000) who has investigated their effectiveness in Canada, creates the term "experiential capital" to define the unique value of the experienced-based learning provided by Co-op programs. However, he also identifies a major difficulty that such programs face. After the initial group of supportive employers have become involved, Co-op places are now becoming hard to find. As a consequence, the programs are becoming selective and will soon be available only to an 'elite'.

Classroom-based vs Experience-based

The debate about focussing on pre-employment or in-employment programs is closely linked to the issue of classroom-based or experience-based programs. While the previous example of Co-op programs highlights the 'social acculturation' advantage of experienced-based programs, there is also evidence that experience-based programs are deficient in conceptual development (Hawke 1998a), a factor whose increasing importance has already been noted. As a rule, training based in the workplace has a short-term focus on specific processes or contexts, and does not provide for opportunities to identify the broad principles or concepts that underpin related areas of practice. While such generalisations are possible and procedures for

encouraging this are now well known (Billett 1993), there is good reason to believe they are rarely provided in typical workplaces (Hawke 1998a).

Moreover, there is evidence that experience-based programs can be very inefficient as learning contexts and can even be destructive in teaching inappropriate or dangerous behaviour (Hawke 1998b).

On the other hand, classroom-based programs are unattractive to many learners as they are tied in their imagination to negative experiences from their schooling days and, like employers, they often fail to see that such programs are relevant to the 'real world'.

The challenge is to find a form of delivery that maximises the better features of both classrooms and real experience at a time when placement in real workplaces is increasingly difficult, and the cost of simulated workplaces within institutions is high.

Course-centred vs Individualised

The changes in work life involve the apparent contradiction that generalists are disappearing but 'adaptive' workers are highly desired. This arises because work is becoming more like a collection of specialist roles than has been the case before. For vocational education, then, the issue becomes one of how to deal with this diversity of need. Is the traditional course involving a consistent program delivered to many learners a viable strategy?

We know that cost and feasibility issues constrain the extent to which individualisation is possible. In particular, individualisation on a large scale becomes viable only when a substantial degree of self-management of learning is involved. However, we also know that self-managed learning is effective for some learners (Johnstone & Melville 1998). Certainly, when it works, it works exceptionally well, but to adopt this approach on any mass basis is likely to require substantial changes in the attitudes and practice of both educators and learners.

Immediate challenges

In this survey we've explored a range of changes to work and some of their implications for vocational education. Many of these are new examinations of age-old dilemmas such as the balance between generic and specific content. However, there are new challenges, too, such as those that arise from the new technologies. Some of these will probably require change over a period of time but others, we suggest are more pressing. Amongst these we draw attention to four which seem to be ones that warrant some immediate attention.

- **Making employer involvement an economic imperative.**
  Employers will continue to play a major part in regulating work for the immediate future. However, their commitment to funding training is declining and there is a significant transfer of the cost burden from employers to both the state and to individuals. While employers can argue less direct benefits from training than might once have applied, the indirect benefits remain substantial and may even be growing. We need to identify new and creative ways to ensure that employers contribute to the total costs of providing the educated workforce that is now required.

- **Improving awareness of workplace realities among VocEd teachers**
  One of the major criticisms of vocational programs in recent times has been that they are out of touch with the realities of the modern workplace. This is a criticism that has much justification. However, it is a consequence of the rapidity of change rather than of failure on the part of teachers or, to a degree, of systems.

  Nonetheless, vocational teachers are now, to a considerable degree, out of touch with the current culture and practices of the workplace, and this must change. In Australia and elsewhere programs of returning teachers to the workplace have been attempted with, at best, mixed results. To be successful these sorts of programs require full commitment from the systems and from employers at large. Moreover, they need to be continuing in nature and frequent in application. The cost implications of this are substantial but can no longer be ignored.

- **Adapting Co-op style programs to deal with multiple employers**
  Placements in a single workplace are increasingly unable to provide the breadth of exposure and experience that is required. In parallel with the workplace itself, multiple placements with different employers are typically required. This can be an administrative nightmare unless systems are developed that naturally allow for these kinds of arrangements.

  The Australian Group Training system that operates for apprentices and others involved in employment-based training is one example of an effective mechanism for achieving this outcome.

- **Building international alliances in vocational education**
  While the workplace is becoming increasingly globalised, vocational education has not sought to build international linkages in quite the same way. There are economies of scale to be achieved, as well as better reflecting the development of global standards and practices in stronger collaborative work between vocational education systems.

All of the changes that we've discussed can appear to be frightening and worrisome, and some are changes that certainly need to be questioned. However, most of the changes we've considered have histories that begin in the 1980s, and others can be traced back to the post-war expansion in the 1950s. So many of these changes are a part of our present reality and need to be considered in rethinking vocational education —hopefully in a more considered way than has occurred in the last decade.

The fundamental question for vocational education that arises from the changes we've identified is that of purpose. Why do we want a vocational education system at all and, if we do, what is it meant to do?

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